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Atty. Docket No. SHA01 P-346A

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June 23, 2005
Date

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Art Unit : 3612
Examiner : Dennis H. Pedder
Applicant : Darin Evans
Appln. No. : 10/715,002
Filing Date : November 17, 2003
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For : BUMPER FOR REDUCING PEDESTRIAN INJURY

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

APPLICANT'S REPLY UNDER 37 C.F.R. § 1.193

This is in reply to Examiner's Answer dated as mailed April 26, 2005.

Items (1-5):

The Examiner has agreed that these items are acceptable as listed in the Appeal Brief.

Item (6):

The Examiner has agreed that this item is substantially correct as listed in the Appeal Brief, except that claim 27 is no longer rejected under 35 USC §112, second paragraph.

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Item (7):

The Examiner has agreed that a correct copy of the appealed claims appears in the Appendix of the Appeal Brief.

Item (8):

The Examiner's Evidence Relied Upon is correct as listed in the Examiner's Answer.

Items (9 and 10) Reply to Examiner's Grounds of Rejection and Arguments:

The Applicant's Appeal Brief stands, and is incorporated herein in its entirety. The following comments are intended to directly reply to the Examiner's Answer. In the Examiner's Answer, the Examiner made seven responses to the arguments made in Applicant's Appeal Brief. These seven arguments will be addressed in the order presented in the Examiner's Answer.

A. Rejection of Claims 7-21 and 28-31 Under 35 USC §112, Second Paragraph

Claims 7 and 8

Claims 7 and 8 state, among other things, that the top and bottom nose portions of top and bottom horizontal sections of an energy absorber collapse with a parallelogram motion that shifts one or both of the upper and lower front walls of the top and bottom horizontal sections, respectively, vertically. According to the Examiner's Answer, "[t]he nose portions deflect upwardly and downwardly at their left edges respectively when an object of the matching size impacts the space inbetween and the right edge, fastened to the beam, does not move, precluding the recited motion." According to the Examiner's Answer, since one side of a parallelogram does not move, the top and bottom nose portions cannot collapse with a parallelogram motion as claimed in claims 7 and 8. However, all four walls of a parallelogram do not have to move in order to be collapsible with a parallelogram motion as claimed in claims 7 and 8. For example, if one side of a rectangle remains stationary and the two sides of the rectangle connected to the stationary side were rotated, the rectangle would be collapsible

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with a parallelogram motion as the former rectangle will continue to have two pairs of parallel sides. Furthermore, it appears that the Examiner is stating that claims 7 and 8 state that the top horizontal section and bottom horizontal section are collapsible with a parallelogram motion. However, claims 7 and 8 state that a nose portion of the top and bottom horizontal sections is collapsible with a parallelogram motion. Accordingly, claims 7 and 8 are believed to be definite.

Claims 9-14 and 28

Claims 9-14 and 28 define a bumper system for a vehicle including, among other things, top and bottom front nose portions of top and bottom horizontal sections that are each semi-rigid but collapsible with a parallelogram motion. Regarding the indefiniteness rejection of claims 9-14 and 28 for including the phrase “collapsible with a parallelogram motion,” the arguments relative to definiteness of the claims presented above in regard to claims 7 and 8 and in the Appeal Brief applied to claims 9-14 and 28 are incorporated herein, such that claims 9-14 and 28 are believed to be definite. As an aside, Applicant notes that claim 23 depends from claim 9, but has not been rejected as being indefinite and is therefore believed to be definite.

Claims 15 and 29

Claims 15 and 29 define a method including, among other things, shifting at least one of a nose portion of a top and bottom section of an energy absorber vertically with a parallelogram motion. Regarding the indefiniteness rejection of claims 15 and 29 for including the phrase “parallelogram motion,” the arguments relative to definiteness of the claims presented above in regard to claims 7 and 8 and in the Appeal Brief applied to claims 15 and 29 are incorporated herein, such that claims 15 and 29 are believed to be definite. As an aside, Applicant notes that claim 24 depends from claim 15, but has not been rejected as being indefinite and is therefore believed to be definite.

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Claims 16-20 and 30

Claims 16-20 and 30 define a bumper system for a vehicle including, among other things, an energy absorber including at least one section having parallel upper and lower walls that collapse with a parallelogram motion. Regarding the indefiniteness rejection of claims 16-20 and 30 for including the phrase “collapse with a parallelogram motion,” the arguments relative to definiteness of the claims presented above in regard to claims 7 and 8 and in the Appeal Brief applied to claims 15-20 and 30 are incorporated herein, such that claims 16-20 and 30 are believed to be definite. As an aside, Applicant notes that claim 25 depends from claim 16, but has not been rejected as being indefinite and is therefore believed to be definite.

Claims 21 and 31

Claims 21 and 31 define a bumper system including, among other things, upper and lower walls and a front wall of one section of an energy absorber being joined to collapse with a parallelogram motion. Regarding the indefiniteness rejection of claims 21 and 31 for including the phrase “collapse with a parallelogram motion,” the arguments relative to definiteness of the claims presented above in regard to claims 7 and 8 and in the Appeal Brief applied to claims 21 and 31 are incorporated herein, such that claims 21 and 31 are believed to be definite. As an aside, Applicant notes that claim 26 depends from claim 21, but has not been rejected as being indefinite and is therefore believed to be definite.

Claim 15

According to the Examiner’s Answer, claim 15 is not disclosed because, according to the Examiner’s Answer, the present application does not disclose that energy directed against an impacted person is converted into a throwing force that directs the person in a direction generally perpendicular to the line of impact and away from the vehicle bumper system. However, paragraph 16 of the present application clearly states that:

A vehicle bumper system 20 (Figs. 1-2) includes a beam 21, and an energy absorber 22 with top and bottom horizontal sections 23, 24, and a middle horizontal section 25. The top and bottom horizontal sections 23-24 form top and bottom nose portions 26 and 27 that are semi-rigid but collapsible with a

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parallelogram motion that shifts the top and bottom portions 26 and 27 vertically up (or down) upon impact. As a result, horizontal impact forces 30 are converted in part to vertical forces 31 during an initial stroke of a frontal impact (Fig. 4), in effect “catching” the knee 29’ (Fig. 4) of a human 29 during a collision. Upon a continuing impact stroke (Fig. 5), the top and bottom horizontal sections 23-24 provide a “throwing” action, as shown by increasing forces 31 and 31’. During the continuing impact stroke, the horizontal sections 23-25 also crush and provide increased energy absorption, as shown by Fig. 5. The combination of these forces 31 and 31’ “throw” the impacted human 29 upward in a direction off the bumper beam 21. A majority of the force 31 is upward due to a majority of the person’s weight being above the person’s knees. However, it is noted that there is a component of downward vertical forces 31’, as shown in Fig. 5.

Accordingly, a throwing force is disclosed in the present application and Applicant is unsure how such a recitation in claim 15 makes claim 15 indefinite. Nevertheless, as recognized by the Examiner, a majority of weight of a person being struck by the bumper system of the present invention is located above the person’s knee. Therefore, even though the upper and lower horizontal sections of the bumper beam may be constructed the same, a greater force would be applied to the upper horizontal section of the energy absorber because of the weight distribution of the person being above the upper horizontal section. Accordingly, the upper horizontal section would move more than the lower horizontal section, thereby forcing the person upward as the knee impacts the bumper system. Nevertheless, as stated above, Applicants submit that the Examiner’s rejection is not applicable to the definiteness of the claim and claim 15 is therefore believed to be definite.

Claim 21

Claim 21 defines a bumper system including, among other things, an energy absorber having at least one section having parallel upper and lower walls that extend generally perpendicular to the face of a beam and having a front wall, the upper and lower walls being elongated and longer than the front wall. According to the Examiner, there is no clear frame of reference for “longer than the front wall.” However, the term “longer” has clear reference as being longer than the front wall. According to the Examiner, this term could be measured

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either longitudinally or laterally to the vehicle. Accordingly, it appears that the Examiner is stating that claim 21 is broad. However, breadth of a claim is not to be equated with definiteness. *In re Miller*, 169 USPQ 597 (CCPA 1971). If the Examiner believes that the scope of claim 21 is too broad, any such objection should be addressed in a prior art rejection of the claims and claim 21 is believed to be definite.

B. Rejection of Claims 1, 5-8 and 15-21 as Being Unpatentable Over the UK Patent Application

Claims 1, 5 and 6

Claim 1 defines a bumper system for a vehicle including, among other things, an energy absorber having a top horizontal section, a bottom horizontal section and a middle horizontal section, the top and bottom horizontal sections including top and bottom front nose portions, the front nose portions being configured to provide a first level of energy absorption during an initial impact stroke that collapses one or both of the front nose portions, and the top, middle, and bottom horizontal sections providing a higher second level of energy absorption during a continuing impact stroke that collapses the energy absorber against the face of the beam. According to the Examiner's Answer, a second level of absorption is offered by the sections backing up the base portion 32 of an energy absorber 14 of the UK Patent Application (referred to by the Examiner as "Scrivo"). However, the sections backing up the base portion 32 of the energy absorber 14 are not part of the energy absorber. Accordingly, the reference as cited by the Examiner does not include an energy absorber having a first level of energy absorption and a higher second level of energy absorption as claimed in claim 1. Accordingly, claims 1, 5 and 6 are in condition for allowance.

Claims 7 and 8

Claims 7 and 8 depend from claim 1, and further define the top and bottom nose portions of the top and bottom horizontal sections of the energy absorber as being semi-rigid, but collapsible with a parallelogram motion that shifts one or both of the upper and lower front walls vertically, such that horizontal impact forces are converted at least in part to a vertical

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force upon receiving a horizontal frontal impact. According to the Examiner, "impact with an object of the shape of a knee would inherently shape the nose portions [of the UK Patent Application] upwardly and downwardly as claimed." However, claims 7 and 8 do not state that the top and bottom nose portions are collapsible with a parallelogram motion that shifts one or both of the upper and lower front walls vertically when impacted with an object in the shape of a knee. Claims 7 and 8 are drawn to movement upon receiving a horizontal frontal impact. Any horizontal frontal impact against the energy absorber 14 of the UK Patent Application would not shift nose portions upwardly or downwardly. Furthermore, contrary to the Examiner's Answer, the structure of the UK Patent Application at a point of impact is not identical to that of the present application. Accordingly, claims 7 and 8 are in condition for allowance.

Claim 15

Claim 15 defines a method including, among other things, shifting at least one of the nose portions of a top and bottom section of the energy absorber vertically with a parallelogram motion in response to an impact directed horizontally against a front of the bumper system. Accordingly, claim 15 requires that a horizontal impact will shift at least one of the nose portions vertically. In the rejection of claim 15 set forth in the Office Action, the Examiner uses a knee or an angled force to shift portions of the energy absorber 14 as disclosed in the UK Patent Application. However, a horizontal force is required for the limitations of claim 15 and the UK Patent Application does not disclose any energy absorber that would shift as recited in claim 15. Accordingly, claim 15 is in condition for allowance.

Claims 16-20

Claims 16-20 define a bumper system including, among other things, an energy absorber including at least one section having parallel upper and lower walls, a main front wall and an angled front wall connecting a front edge of the upper and lower walls, the main front wall and the angled front wall forming a non-planer front surface that, upon a front impact against a pedestrian's knee, causes a structural collapse where the upper and lower walls flex

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with a parallelogram motion, the parallelogram motion redirecting and converting an impact force that is initially horizontal against the knee into an upward vertical force. First, the UK Patent Application does not disclose any energy absorber having parallel upper and lower walls. Furthermore, as discussed above, the UK Patent Application does not disclose any energy absorber that will redirect and convert an impact force that is horizontal into an upward vertical force. Accordingly, claims 16-20 are in condition for allowance.

Claim 21

Claim 21 defines a bumper system including, among other things, an energy absorber including at least one section having parallel upper and lower walls and a front wall, the upper and lower walls being elongated and longer than the front wall and further the upper and lower walls and the front wall being joined to collapse with a parallelogram motion so that, upon a front impact against a pedestrian's knee and leg, the upper and lower walls flex with a parallelogram motion, the parallelogram motion redirecting and converting impact forces that are initially horizontal against the knee into vertical forces less damaging to the pedestrian's knee and leg. First, the UK Patent Application does not disclose any energy absorber having parallel upper and lower walls. Furthermore, as discussed above, the UK Patent Application does not disclose any energy absorber that will redirect and convert an impact force that is horizontal into a vertical force. Accordingly, claim 21 is in condition for allowance.

C. Rejection of Claim 3 as Being Unpatentable Over 35 USC §103(a) Over the UK Patent Application

The Applicant's Appeal Brief stands. The arguments relative to the allowability of claim 3 are incorporated herein in their entirety.

D. Rejection of Claim 4 as Being Unpatentable Over 35 USC §102(b) or 35 USC §103(a) Over the UK Patent Application

The Applicant's Appeal Brief stands, and the arguments relative to allowability of claim 4 is incorporated herein in its entirety.

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E. Rejection of Claims 9 and 11-14 as Being Unpatentable Over 35 USC §103(a) Over the UK Patent Application in View of U.S. Patent No. 5,092,512 to Sturrus et al.

Claims 9 and 11-14

Claims 9 and 11-14 define a bumper system for a vehicle including, among other things, an energy absorber having a top horizontal section and a bottom horizontal section, the top and bottom horizontal sections including top and bottom front nose portions, the top and bottom front nose portions each being semi-rigid but collapsible with a parallelogram motion that shifts one or both of the upper-front and lower-front walls vertically, such that horizontal impact forces are converted at least in part to a vertical force upon receiving a horizontal frontal impact during an initial stroke of the frontal impact. According to the Examiner, “impact with an object of the shape of a knee would inherently shape the nose portions [of the UK Patent Application] upwardly and downwardly as claimed.” However, claims 9 and 11-14 do not state that the top and bottom nose portions are collapsible with a parallelogram motion that shifts one or both of the upper and lower front walls vertically, such that horizontal impact forces are converted at least in part to a vertical force upon receiving a horizontal frontal impact during an initial stroke of the frontal impact. Claims 9 and 11-14 are drawn to movement upon receiving a horizontal frontal impact. Any horizontal frontal impact against the energy absorber 14 of the UK Patent Application would not shift nose portions upwardly or downwardly. Furthermore, contrary to the Examiner’s Answer, the structure of the UK Patent Application at a point of impact is not identical to that of the present application. Accordingly, claims 9 and 11-14 are in condition for allowance.

F. Rejection of Claims 2 and 10 as Being Unpatentable Under 35 U.S.C. §103(a) Over the UK Patent Application in view of the Japanese ‘848 publication or Over the UK Patent Application in view of the Sturrus et al. ‘412 patent and the Japanese ‘848 publication

Claim 2

Claim 2 depends from claim 1, and further states that the top and bottom walls define wavy and undulating surfaces. First, Applicant submits that the Japanese ‘484 publication does

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not disclose an energy absorber that includes top and bottom walls that define wavy and undulating surfaces. The element 4 of the Japanese '484 publication points to a flat surface. Second, Applicant submits that the Examiner has not provided a proper suggestion or motivation for combining the Japanese '484 publication with the UK Patent Application alone or in combination with the Sturrus et al. '512 patent. According to the Examiner, adding a wavy top wall adds an additional energy absorbing structure, thereby enhancing the function of an energy absorber. However, making a top wall wavy would not add any structure as every part added above a horizontal surface would be removed from below the horizontal surface to provide the waviness, thereby not adding any additional material. Nevertheless, the Japanese '484 publication includes an energy absorber having honeycombs for allowing air to reach an engine. However, in order for the air to reach an engine, there must be openings in a bumper frame 1 as disclosed in the Japanese '848 publication. Since there are no openings in any bumper of the UK Patent Application or the Sturrus et al. '512 patent, there is no suggestion or motivation for combining the Japanese '848 publication with the UK Patent Application and the Sturrus et al. '512 application. Accordingly, claim 2 is in condition for allowance.

Claim 10

Claim 10 depends from claim 9, and further states that the top and bottom walls define wavy and undulating surfaces. Regarding the rejection of claim 10 over the UK Patent Application either alone or in combination with the Sturrus et al. '512 patent in view of the Japanese '848 publication, the arguments relative to allowability of the claim presented above in regard to claim 2 and in the Appeal Brief applied to claim 10 are incorporated herein, such that claim 10 is believed to be allowable.

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G. Rejection of Claims 22-26 as Being Unpatentable Under 35 U.S.C. §103(a) Over the UK Patent Application in view of U.S. Patent No. 5,799,991 to Glance or Over the UK Patent Application in view of the Sturrus et al. '412 Patent and U.S. Patent No. 5,799,991 to Glance

Claim 22

According to the rejection of claim 22 in the Office Action, it would have been obvious to one of ordinary skill to provide in the UK Patent Application alone or as modified by the Sturrus et al. '512 patent a foam absorber material as taught by the Glance '991 patent in order to use an absorber commercially available with known properties. Therefore, the absorber commercially available is the absorber taught in the Glance '991 patent. However, the Examiner then goes on to state that no incorporation of the structure of the Glance '991 patent was set forth in the UK Patent Application, merely a teaching of material. Applicant does not understand how a commercially available absorber being used in the combination as set forth by the Examiner is not an incorporation of the structure of the Glance '991 patent. If the commercially available absorber is not used, there is no combination as set forth in the Office Action. Accordingly, Applicant submits that the Examiner has not provided sufficient suggestion or motivation for combining the Glance '991 patent with the base references as set forth in the Examiner's Answer.

Claim 23

The inappropriateness of combining the Glance '991 patent with the UK Patent Application and/or the Sturrus et al. '512 patent is discussed above in regard to claim 22 and is incorporated herein with respect to claim 23.

Claim 24

The inappropriateness of combining the Glance '991 patent with the UK Patent Application and/or the Sturrus et al. '512 patent is discussed above in regard to claim 22 and is incorporated herein with respect to claim 24.

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Claim 25

The inappropriateness of combining the Glance '991 patent with the UK Patent Application and/or the Sturrus et al. '512 patent is discussed above in regard to claim 22 and is incorporated herein with respect to claim 25.

Claim 26

The inappropriateness of combining the Glance '991 patent with the UK Patent Application and/or the Sturrus et al. '512 patent is discussed above in regard to claim 22 and is incorporated herein with respect to claim 26.

Conclusion

Each appealed claim is definite and recites features that are not disclosed in any of the cited references and it would not have been obvious to modify the cited references to include the recited features of the appealed claims. The references upon which the Examiner relies in the Examiner's rejection of the twice rejected claims do not disclose or suggest a bumper system with the energy absorber as claimed. Applicant's invention resolves problems and inconveniences experienced in the prior art, and therefore represents a significant advancement in the art. Applicant earnestly requests that the Examiner's rejection of claims 1-31, inclusive, be reversed, and that the application be passed to issuance forthwith.

Respectfully submitted,

6123105
Date

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